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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/365,118	07/30/1999	DIETER MICHEL	56/327	1392

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EXAMINER

LYONS, MICHAEL A

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/365,118

Applicant(s)

MICHEL ET AL.

Examiner

Michael A. Lyons

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Due to the incompleteness of the previous Office Action, the Final Rejection mailed September 25, 2003, in combination with the persuasiveness of the arguments contained in the applicants' remarks of January 29, 2004, the finality of that action is withdrawn.

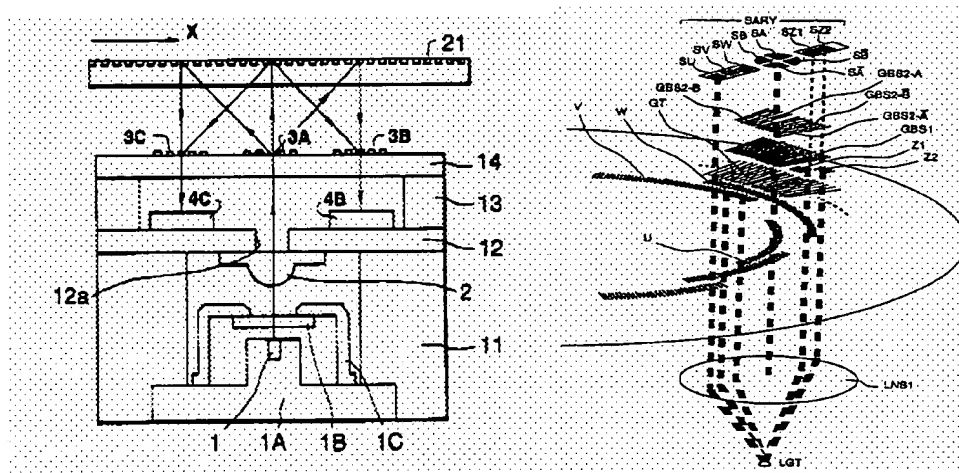
Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-12 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al (5,666,196) in view of Ishizuka (5,663,794).



Regarding claim 1, Ishii (Fig. 3) discloses an apparatus comprising a holder 11 as a housing, a scanning unit with light course 1 and detectors 4B and 4C, a reflection graduation structure (diffraction grating) 21, and a group of diffraction gratings 3A-3C attached to the housing.

Ishii, however, fails to disclose the use of a graduated disk, and the reflection graduation structure is not attached to the housing; the trio of diffraction gratings are.

First, Ishizuka (Fig. 9) discloses the use of a disk D featuring varying diffraction gratings such as GT for use in a displacement information detection apparatus. As shown in Figure 14, this disk is located around a shaft SF to enable rotation. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a disk structure for the diffraction gratings of Ishii as per Ishizuka, since the diffraction gratings will generate the same light diffraction whether arranged in a line or in a circular pattern.

Additionally, while the exact arrangement and location of the elements of the apparatus has not been disclosed, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make reflection grating 21 stationary and attached to the housing, while grating set 3A-3C is moveable on a disk as per Ishizuka above, since it has been held that

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rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Although, in Ishii, the reflection grating is moving while the transmission grating is stationary, relative motion is being measured; the same results would be found if the reflection grating was stationary and the transmission grating was moveable. Furthermore, keeping all the elements of the invention enclosed in the same housing would be advantageous as it would keep the gratings in perfect working order, as the housing would prevent dust, dirt, and other unwanted particles from disrupting the gratings.

As to claims 2 and 20, it would be obvious to have a housing that is insensitive to oscillations, as a vibrating housing would cause fluctuations in the rotation of the disk, causing less than ideal results.

As to claims 3-12, all the limitations contained therein focus on non-essential location and construction of the apparatus. Rearrangement of the elements of Ishii and Ishizuka is non critical, and it would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the elements as necessary, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

As to claim 18, the disk of Ishizuka is rotated by motor MT and controlled by motor driver MD to enable desired rotation and movement of the disk.

As to claim 19, as shown in Figure 14 of Ishizuka, the disk D is located around a shaft SF to enable rotation.

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al (5,666,196) in view of Ishizuka (5,663,794) and in further view of Ito et al (6,154,278).

Regarding claims 13-16, the combination of Ishii and Ishizuka as described above with regard to claim 1 discloses the elements of the apparatus. However, the combination fails to disclose a size representation for the arrangement of the gratings of the system.

Ito, however, discloses in equation 1 (Column 10, lines 39-63), that takes into consideration the refractive index of the material of the grating, the distance between the stationary and moving gratings, and the wavelength of the light source, in the construction of the gratings for an optical encoder that optically measures the displacement of a moving body.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use gratings of the construction disclosed by Ito in the combined device of Ishii and Ishizuka in order to generate a more exact measurement of the desired motion within the apparatus.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al (5,666,196) in view of Ishizuka (5,663,794).

Regarding claim 17, the combination of Ishii and Ishizuka discloses all the elements of the claimed apparatus as described in claim 1 except for the location of the scanning unit (light source and detectors) on a circular plate connected to the housing.

The light source and detectors of Ishii are already located within housing 11; therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to merely relocate those elements on a circular plate, since it has been held that rearranging parts of an invention involves only routine skill in the art, and placing the light source and detectors in a more central location would do nothing to change the functionality of the device. *In re Japiske*, 86 USPQ 70.

Response to Arguments


Applicant's arguments, see remarks filed January 29, 2004, with respect to the rejection(s) of claim(s) 1-12 and 18-20 under 35 U.S.C. Section 103 as being obvious in view of Ishizuka et al (5,661,296) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the art as disclosed in the rejection above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Lyons whose telephone number is 571-272-2420. The examiner can normally be reached on Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MAL
April 15, 2004


Frank G. Font
Supervisory Patent Examiner
Technology Center 2800